CLAIMS

What is claimed is:

1 1. A method comprising:

2   a.   determining an initial efficient portfolio of financial products

3 selected by an optimization process from an available set of financial products;

4   b.   determining an alternate portfolio that is more diverse than the

5 initial efficient portfolio by searching one or more dimensions of an error space

6 proximate to or surrounding the initial efficient portfolio for a more diverse

7 portfolio of financial products from the available set of financial products;

8   c.   calculating a cost associated with the alternate portfolio by

9 determining the difference between a characteristic of the initial efficient portfolio

10 and a corresponding characteristic of the alternate portfolio; and

11   d.   selecting the alternate portfolio if the cost is less than or equal to a

12 predetermined diversity budget.

1 2. The method of claim 1, further comprising repeating b-d if no stopping conditions

2 are met, wherein said selecting the alternate portfolio also considers the relative

3 desirability between the alternate portfolio and the selected alternative portfolio

4 from a previous iteration.

1 3. The method of claim 1, wherein the stopping conditions comprise one or more of

2 the following:

3   the cost exceeds the predetermined diversity budget;

4   holding a measure of risk constant is no longer feasible;

5   a maximum exposure is less than a predetermined minimum exposure

6   threshold;

7   exposure to a predetermined maximum number of mutual fund products

8   has been achieved;

9   exposure to a predetermined minimum number of mutual fund products

10   has been achieved;

11   a predetermined maximum number of iterations has been performed;

12   a predetermined minimum number of iterations has been performed;

13   a predetermined maximum number of alternate portfolios has been

14   considered; and

15   a predetermined minimum number of alternate portfolios has been

16   considered.

1   4.   The method of claim 3, wherein the predetermined diversity budget is a default

2   parameter.

1   5.   The method of claim 3, wherein the predetermined diversity budget is a user-

2   specified parameter.

1   6.   The method of claim 1, wherein the determining an alternate portfolio further

2   comprises imposing a maximum exposure constraint that limits holdings in any

3   individual financial product of the available set of financial products.

1   7.   The method of claim 1, wherein the predetermined diversity budget is based at

2   least in part upon a user-specified utility function.

1   8.   The method of claim 1, wherein the predetermined diversity budget is based at

2   least in part upon a level of investment risk specified by the user.

1   9.   The method of claim 1, wherein the characteristic comprises expected return.

1   10.   The method of claim 1, wherein the characteristic comprises risk.

1   11.   The method of claim 1, wherein the error space is defined in terms of one or more

2   of expected return, risk, and utility.

1   12.   The method of claim 1, wherein searching the one or more dimensions of an error

2   space comprises evaluating portfolios having substantially the same level of risk

3   as the initial portfolio but having lower expected returns.

1   13.   The method of claim 1, wherein searching one or more dimensions of an error

2   space comprises evaluating portfolios having approximately the same expected

3   returns as the initial portfolio but having a higher level of risk.

1   14.   The method of claim 1, wherein searching one or more dimensions of an error

2   space comprises evaluating portfolios with higher diversity levels, but with utility

3   levels which do not fall below a predetermined utility floor defined by a utility

4   budget.

1   15.   A method comprising:

2   a.   determining an initial efficient portfolio of mutual fund products

3   from an available set of mutual fund products;

4   b.   generating a more diversified portfolio than the initial efficient

5   portfolio from the available set of mutual fund products without violating a

6   maximum exposure constraint;

7   c.   measuring a cost associated with the more diversified portfolio by

8   comparing a first expected return associated with the initial efficient portfolio

9   with a second expected return associated with the more diversified portfolio; and

10   d.   selecting the more diversified portfolio if the cost associated with

11   the portfolio is less than or equal to a user specified diversity budget.

1   16.   The method of claim 15, further comprising modifying the maximum exposure

2   constraint and repeating b-d if one or more of the stopping conditions are not met.

1   17.   The method of claim 15, wherein the stopping conditions comprise one or more of

2   the following:

3   the cost exceeds the predetermined diversity budget;

4   holding a measure of risk constant is no longer feasible;

5   the maximum exposure constraint is less than a predetermined minimum

6   exposure constraint;

7   exposure to a predetermined maximum number of mutual fund products

8   has been achieved;

9   exposure to a predetermined minimum number of mutual fund products

10   has been achieved;

11   a predetermined maximum number of iterations has been performed;

12   a predetermined minimum number of iterations has been performed;

13   a predetermined maximum number of alternate portfolios has been

14   considered;

15   a predetermined minimum number of alternate portfolios has been

16   considered; and

17   a specified period of time has expired.

1   18.   The method of claim 15, wherein the maximum exposure constraint represents a

2   maximum exposure to any individual mutual fund in the available set of mutual

3   funds in terms of a percentage value of the more diversified portfolio as a whole.

1   19.   The method of claim 15, wherein the maximum exposure constraint represents a

2   maximum number of mutual funds that may be included in the more diversified

3   portfolio.

1   20.   The method of claim 15, wherein the maximum exposure constraint represents a

2   maximum proportion of the more diversified portfolio that may be invested in any

3   individual mutual fund of the more diversified portfolio.

1   21.   The method of claim 15, wherein the user specified diversity budget is specified

2   in basis points.

1   22.   The method of claim 15, wherein the generating a more diversified portfolio

2   comprises searching an error space proximate to or surrounding the initial

3   efficient portfolio.

1   23.   The method of claim 22, wherein the generating a more diversified portfolio

2   comprises randomly selecting a portfolio within the error space..

1   24.   A method comprising:

2   determining an initial portfolio of financial products from an available set

3   of financial products, wherein the available set of financial products comprise one

4   or more of mutual funds and stocks;

5   determining one or more alternate portfolios that are more diverse than the

6   initial portfolio;

7   measuring a cost associated with achieving diversity by comparing one or

8   more characteristics of the initial portfolio and the one or more alternate

9   portfolios; and

10   selecting a portfolio of the one or more alternate portfolios having an

11   associated cost that is less than or equal to a predetermined diversity budget.

1   25.   The method of claim 24, wherein the cost is defined in terms of expected return,

2   and wherein the step of measuring a cost associated with achieving diversity

3   comprises determining a difference between an expected return associated with

4 the initial portfolio and expected returns associated with the one or more alternate

5 portfolios.

1 26. The method of claim 24, wherein the predetermined diversity budget comprises

2 an annual standard deviation between approximately 0 and .01.

1 27. A method comprising:

2   determining an initial portfolio and a plurality of more diversified

3 portfolios of financial products from an available set of financial products;

4   determining a cost associated with each of the plurality of more diversified

5 portfolios, wherein the cost is measured in terms of one or more of expected

6 returns, risk, and utility; and

7   selecting the most diversified portfolio of the more diversified portfolios

8 having an associated cost that is less than or equal to a predetermined diversity

9 budget.

1 28. The method of claim 27, wherein the cost is defined in terms of risk, and wherein

2 the step of measuring a cost associated with achieving diversity comprises

3 determining a difference between the risk associated with the initial portfolio and

4 risks associated with the one or more diversified portfolios.

1 29. The method of claim 27, wherein the predetermined diversity budget is a user

2 specified parameter.

1 30. A method comprising the steps of:

2   a step for determining an initial portfolio of financial products from an

3 available set of financial products;

4   a step for determining one or more alternate portfolios of financial

5   products from the available set of financial products that are more diverse than the

6   initial portfolio;

7   a step for measuring a cost associated with achieving diversity based upon

8   one or more characteristics of the initial portfolio and the one or more alternate

9   portfolios; and

10   a step for selecting a portfolio of the one or more alternate portfolios

11 having an associated cost of achieving diversity that is less than or equal to a

12 predetermined diversity budget.

1   31.   The method of claim 30, wherein the step for determining one or more alternate

2   portfolios further comprises a step for imposing a maximum exposure constraint

3   that limits holdings in any individual financial product of the available set of

4   financial products to a lesser percentage than the maximum exposure constraint.

1   32.   An apparatus comprising:

2   a portfolio optimization means for simulating portfolio return scenarios for

3   one or more portfolios including combinations of financial products from an

4   available set of financial products; and

5   a diversification processing means comprising:

6   a means for determining an initial portfolio and a plurality

7   of more diversified portfolios from an available set of financial

8   products;

9   a means for determining a cost associated with each of the

10   plurality of more diversified portfolios; and

11   a means for selecting the most diverse portfolio of the more

12   diversified portfolios having an associated cost that is less than or

13   equal to a predetermined diversity budget.

1   33.   The apparatus of claim 32, wherein the cost is defined in terms of a utility, and

2   wherein the means for determining a cost associated with each of the plurality of

3   more diversified portfolios comprises a means for determining a difference

4   between a first utility associated with the initial portfolio and a second utility

5   associated with the plurality of more diversified portfolios.

1   34.   A method comprising:

2   a.   determining an initial efficient portfolio of financial products

3   selected by an optimization process from an available set of financial products;

4   b.   determining an alternate portfolio by searching one or more

5   dimensions of an error space proximate to or surrounding the initial efficient

6   portfolio for a portfolio of financial products from the available set of financial

7   products having a predetermined diversity level relative to the initial efficient

8   portfolio;

9   c.   calculating a cost associated with the alternate portfolio by

10   comparing the difference between a characteristic of the initial efficient portfolio

11   and a corresponding characteristic of the alternate portfolio; and

12   d.   selecting the alternate portfolio if the cost is less than or equal to a

13   predetermined diversity budget.

1   35.   The method of claim 34, wherein the predetermined diversity level comprises a

2   higher level of diversity than the initial efficient portfolio.

1   36.   The method of claim 34, wherein the predetermined diversity level comprises a

2   lower level of diversity than the initial efficient portfolio.

1   37.   The method of claim 34, wherein the stopping conditions comprise one or more of

2   the following:

3   the cost exceeds the predetermined diversity budget;

4   holding a measure of risk constant is no longer feasible;

5   a predetermined maximum number of iterations has been performed;

6   a predetermined minimum number of iterations has been performed;

7   a predetermined maximum number of alternate portfolios has been

8   considered;

9   a predetermined minimum number of alternate portfolios has been

10   considered;

11   the alternate portfolio comprises a minimum number of financial products

12   from the available set of financial products and the cost is less than or equal to the

13   predetermined diversity budget.

1   38.   The method of claim 34, wherein the error space is defined in terms of one or

2   more of expected return, risk, and utility.

1   39.   The method of claim 34, wherein searching the one or more dimensions of an

2   error space comprises evaluating portfolios having substantially the same level of

3   risk as the initial portfolio but having lower expected returns.

1   40.   The method of claim 34, wherein searching one or more dimensions of an error

2   space comprises evaluating portfolios having approximately the same expected

3   returns as the initial portfolio but having a higher level of risk.

1   41.   The method of claim 34, wherein searching one or more dimensions of an error

2   space comprises evaluating portfolios with higher diversity levels, but with utility

3   levels which do not fall below a predetermined utility floor defined by a utility

4   budget.